

**To:** Rumrill, Nancy[Rumrill.Nancy@epa.gov]  
**From:** JAMES D WALKER  
**Sent:** Wed 3/1/2017 9:28:49 PM  
**Subject:** RE: Question regarding step rate testing

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>>>>>

Nancy,

I found my backup notes on the groundwater velocity and travel time calculations and will draft comments on the basis of those notes and sources. I am not sure what “detailed current source analysis” entails and what else you need from me this week.

Jim

**From:** Rumrill, Nancy  
**Sent:** Wednesday, March 1, 2017 2:13 PM  
**To:** JAMES D WALKER  
**Subject:** RE: Question regarding step rate testing

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## Ex. 5 - Deliberative Process

Albright to our call.

Thanks, Nancy

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*Nancy Rumrill (rumrill.nancy@epa.gov)*

*Drinking Water Protection Section (WTR-3-2)*

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*75 Hawthorne St.*

*San Francisco, CA 94105*

*Phone (415) 972-3293*

**From:** JAMES D WALKER [mailto:jameswalker5@msn.com]  
**Sent:** Wednesday, March 01, 2017 1:00 PM  
**To:** Rumrill, Nancy  
**Subject:** RE: Question regarding step rate testing

Nancy,

## Ex. 5 - Deliberative Process

Jim

**From:** [Rumrill, Nancy](#)  
**Sent:** Wednesday, March 1, 2017 11:40 AM  
**To:** [JAMES D WALKER](#)  
**Cc:** [Rao, Kate](#)  
**Subject:** FW: Question regarding step rate testing

Hi Jim,

Under the Excelsior consultations TDM for our conference calls, here's a followup question for you. Are there definitive steps in the SRT that they missed? The two guidances that he's referring to should be enough. Do you think the SPE 16798 would be helpful?

Thanks, Nancy



*Nancy Rumrill ([rumrill.nancy@epa.gov](mailto:rumrill.nancy@epa.gov))*

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**From:** Doug Bartlett [<mailto:DBartlett@clearcreekassociates.com>]  
**Sent:** Wednesday, March 01, 2017 7:40 AM  
**To:** Rumrill, Nancy <[Rumrill.Nancy@epa.gov](mailto:Rumrill.Nancy@epa.gov)>  
**Cc:** Rebecca Sawyer <[rsawyer@excelsiormining.com](mailto:rsawyer@excelsiormining.com)>; Alison Jones

<[ajones@clearcreekassociates.com](mailto:ajones@clearcreekassociates.com)>; Roland Goodgame <[rgoodgame@excelsiormining.com](mailto:rgoodgame@excelsiormining.com)>

**Subject:** Question regarding step rate testing

Nancy – in our meeting last week, you may recall we had a discussion about step rate testing to verify the fracture gradient proposed for the Gunnison project. I have attached two papers that I found online from EPA regarding the methodology for step rate testing. Are there any other papers that I should be reviewing? The step rate methodology that is described seems to match with what Excelsior did to obtain the fracture gradient value proposed in the UIC application.

Any guidance you can give me on this would be greatly appreciated!

Thank you,

Doug Bartlett

**R. Douglas Bartlett, RG, CHG**

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